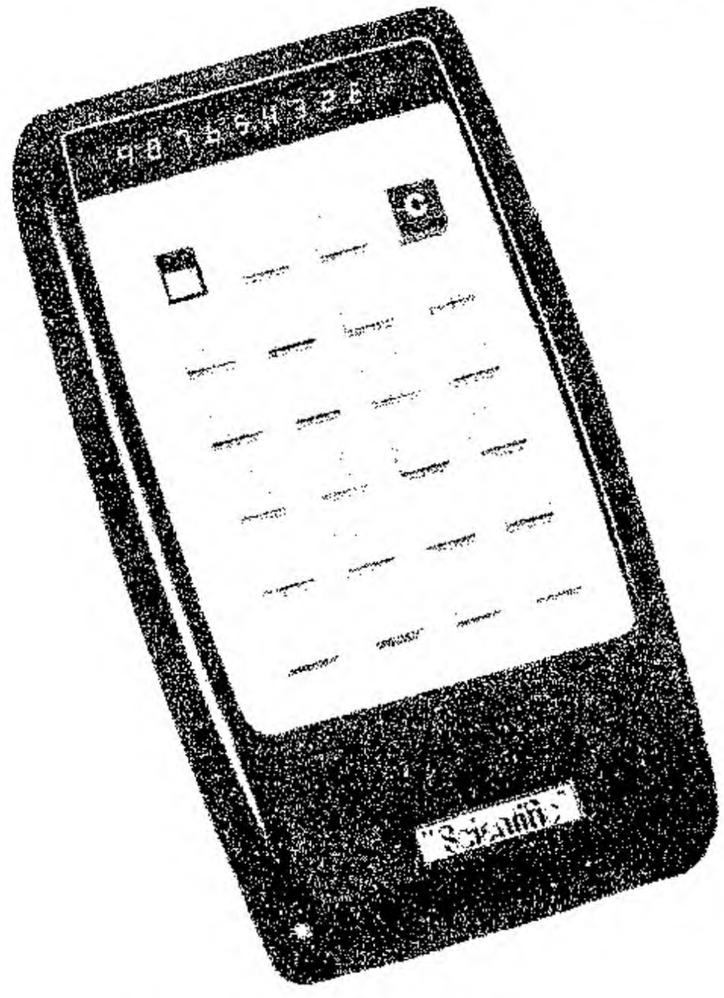
INSTRUCTION MANUAL
for
The "Scientific"



Columbia™ SCIENTIFIC

1710 22nd Street • Santa Monica • California 90404

PRINTED IN U.S.A.

PRICE 75¢

from Columbia™ SCIENTIFIC

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INTRODUCTION

Congratulations! You have just become the owner of one of the finest and most advanced electronic instruments ever made. You will find it to be more than a luxury . . . it will become one of your most valuable tools.

Please read this book carefully. It is important for you to know the abilities of your new **Columbia Scientific** calculator so it may serve you well for many years.

Your **Columbia Scientific** is equipped with nickel cadmium batteries that can be recharged when they lose their power. When you receive your calculator, it is possible these batteries may be discharged and, therefore, fail to operate your calculator. This is possible since rechargeable batteries will lose their charge by approximately 1% per day when they are not being used. Whenever your calculator is stored for long periods, it will be necessary to recharge them before using your calculator again.

When rechargeable batteries are new, they may not accept a full recharge the first few times they are recharged. Do not be alarmed if your calculator requires frequent recharging when you first use it. The nickel cadmium cells in your calculator are designed to take several hundred discharge/recharge cycles before losing their capacity. They should last for years under normal use if cared for properly. If replacement should become necessary, at any time, return your unit to Columbia Scientific. They will be replaced at no charge during the guaranty period. After the guaranty period, as specified on your warranty card, they will be replaced for a nominal charge.

Your calculator is supplied with an AC Adaptor/Charger which is to be used for recharging the batteries in your **Scientific.** When it is in need of recharging, a tiny "L" will appear to the extreme right of the display to indicate your batteries are low.

At this point, plug the recharge unit into the hole in the top of the calculator and plug the recharger into any 110V wall outlet. You may operate your calculator while it is plugged into the electrical outlet. While you are using your calculator the batteries are **not** being recharged. Recharging will resume when the calculator is turned off. So that your batteries will have the longest possible life span, it is advisable to charge for only 12 to 15 hours at a time, then use your calculator until the batteries have discharged again (this should take approximately 4 to 6 hours of calculating time).

Do not use any AC Adaptor/Charger other than the unit supplied *with your calculator.*

Your **Scientific** has 10 keys (0 through 9) which are used to index into the calculator the numbers needed for calculation. The decimal key [·] key is used to index the decimal point, if needed, into its per place and is used just as you would write it. Example: 12.345 would be entered as follows: [1] [2] [·] [3] [4] [5] .

Your [·] key also functions as a means to assign the amount of decimals in your answers. When your calculator is initially turned on, the decimal in your answers will automatically "float" to its proper position in that answer. Example: 99.95 X .05 = 4.9975.

If, however, you wish the answer to be limited to 2 decimals, or 3 decimals, etc., you may command your calculator to do so by depressing the [·] and the [=] key and then the number of decimals you wish. Example: you may wish the answer to 99.95 X .05 to be confined to 2 decimals, for dollars and cents purposes. Depress the keys as follows: [·] [=] [2] [9] [9] [·] [9] [5] [X] [·] [0] [5] [=] (Read: 5.00.)

Continued on next page

You will immediately see that the calculator has "rounded off" the answer to the nearest cent. It has caused 4.9975 to become 5.00. This is particularly useful in computing dollars and cents answers and for calculating tax. When you command the calculator to fix decimals in the answer to 0, 1, 2, 3, 4, or 5 places, the last visible number will be "rounded off" as demonstrated above.

NOTE: Decimal settings will remain at 2 places until you either assign a new decimal setting (such as [.] [=] [5] for 5 places) or until you turn calculator off. If turned off and then on again, decimal will return to full "floating" system without rounding off. You may select 0–1–2–3–4 or 5 decimal places and the fraction to the farthest right of the display panel will automatically round off to the nearest number. You may select 6 or 7 decimal places without round-off. You can see your **Columbia Scientific** has one of the most sophisticated decimal systems available.

The [C] key stands for "Clear." When depressed it will cause any numbers showing on the display panel to disappear, AND will cause the calculator to forget ALL previous numbers or commands. In other words, the calculator forgets everything and is ready to start all over again, and signifies this by displaying a single zero and a decimal point (0.) on the display board.

The [CE] key stands for "clear entry." When a mistaken entry is made, the [CE] key allows you to erase only the mistaken entry without letting the calculator forget previous entries or commands.

The [M/K] key is your memory key. The "M" stands for "memory" and the "K" stands for "constant." The letter "K" is an international symbol for "constant." The [M/K] key allows you to store any number for indefinite periods of time for your future reference. The numbers

stored in the memory can be added to, subtracted from, multiplied by, or divided by other numbers. Therefore, your memory can also be used as a "constant" for continuous multiplication, division, addition or subtraction. It can be the most versatile key on the entire keyboard.

Each time the [=] key is depressed, the number then appearing on the display may be put into the memory by depressing the [M/K] key. You may read a number stored in the memory by again depressing the [M/K] key, providing the [=] key is not depressed immediately prior to depressing the [M/K] key. In other words, depressing the [=] key, then the [M/K] key causes that number to be remembered. Depressing just the [M/K] key causes the stored number to appear in the display and does not clear the memory. Example: [5] [=] [M/K] causes the memory to store the number 5. To prove this, depress the [C] key to clear the calculator, then depress the [M/K] key and the 5 will again appear. The number 5 will remain in the memory indefinitely until (1) you turn off the calculator; (2) you put a new number into the memory; (3) you subtract 5 from memory.

The automatic squaring [X^2] key causes any displayed number to be squared.

The square root [$\sqrt{x}$] key will automatically extract the square root of any displayed number. When depressed, the square root will automatically be stored in the memory.

The [$1/x$] key will automatically calculate the reciprocal of any displayed number.

The [%] key automatically calculates percentages. It allows you to index percentage numbers in the same manner as you would say the

number rather than making it necessary to index the percentage in its true mathematical designation. With most calculators 5% would be indexed as .05, whereas with the **Columbia Scientific** you may merely enter 5 and depress the [%] key. You will receive your answer decimally correct.

Your **Scientific** also has a unique battery saving device built into the circuitry. If you have left your calculator unattended with numbers on the display, the circuits inside cause the display to go blank. This is signified by a small dash (—) appearing on the display just above the [C] key. This will occur after approximately 15 to 20 seconds of inactivity. When you see this dash appear you will know the drain on your batteries has been significantly reduced. The calculator has **not**, however, forgotten the numbers that were on the display panel. To restore these numbers you merely depress the [=] key.

Occasionally you may see a small zero or a large "E" on the extreme right side of the display panel. These symbols indicate an unusual answer or entry. When the small "0" appears, the calculator is telling you the answer has gone "over" its capacity of 8 digits. When this happens you will also see that the decimal point has shifted to another position in the answer. The decimal point is telling you how many numbers you actually have in the answer and the 8 numbers displayed are the leading 8 digits in the answer. Example: [1] [2] [3] [4] [5] [6] [7] [8] [X] [1] [0] [=] (Read: 1.2345678.) Since the decimal is one position to the right, it is telling you to add one more digit to the total answer. Therefore, the answer would actually be 123456780.

When the "E" appears to the right side of the display you have

"exceeded" the 8-digit capacity of the calculator when you entered the numbers. In other words, you have entered 9 or more numbers. At this point the calculator will ignore the extra digits and continue to calculate.

When you receive an answer that is accompanied by a minus (—) sign on the right hand side of the display you have a negative result (credit balance).

Your **Columbia Scientific** is designed with what is commonly called "algebraic logic." This means you give the mathematical equasions to the calculator in the exact manner that you would think or say the problem. Example: 2 + 3 + 4 — 5 X 7 ÷ 8 =. This type of internal logic eliminates the need to clear [C] the calculator between operations.

BASIC OPERATIONS

1. **Addition**

   Example: 123 + 45 = 168

   Depress [1] [2] [3] keys
   Depress [+] key
   Depress [4] [5] keys
   Depress [=] key — Read: 168. on display

2. **Subtraction**

   Example: 678 – 90 = 588.

   Depress [6] [7] [8] keys
   Depress [–] key
   Depress [9] [0] keys
   Depress [=] key — Read: 588. on display

3. **Addition and Subtraction**

   Example: 932 + 56 – 73 = 915

   Depress [9] [3] [2] keys
   Depress [+] key
   Depress [5] [6] keys
   Depress [–] key
   Depress [7] [3] keys
   Depress [=] key — Read: 915. on display

4. **Multiplication**

   Example: 456 X 2 = 912

   Depress [4] [5] [6] keys
   Depress [X] key
   Depress [2] key
   Depress [=] key — Read: 912. on display

5. **Division**

   Example: 789 ÷ 3 = 263

   Depress [7] [8] [9] keys
   Depress [÷] key
   Depress [3] key
   Depress [=] key — Read: 263. on display

6. **Calculating with Decimals**

   Example: 65.38 X 1.44 = 94.1472

   Depress [6] [5] [.] [3] [8] keys
   Depress [X] key
   Depress [1] [.] [4] [4] keys
   Depress [=] key — Read: 94.1472 on display

7. **Mixed Calculations**

   Example: 75 + 98 – 36 X 44 ÷ 7 = 861.14285

   Depress [7] [5] keys
   Depress [+] key
   Depress [9] [8] keys
   Depress [–] key — (intermediate result 173.)
   Depress [3] [6] keys
   Depress [X] key — (intermediate result 137.)
   Depress [4] [4] keys
   Depress [÷] key — (intermediate result 6028.)

Depress [7] key
Depress [=] key Read: 861.14285 on display

You will notice that each time you touch a command key ([+] [−] [X] [÷]) an answer will appear on the display. This is the actual result of the calculation performed to that point (intermediate result).

ADVANCED CALCULATIONS

For these next problems merely follow the problem as indicated with squares [ ] around the keys.

1. Negative Numbers

Example: (−26) + (−15) = −41

Depress [−] [2] [6] [+] [−] [1] [5] [=] Read: 41.− [C]

Example: (−4) X 8 = −32

Depress [−] [4] [X] [8] [=] Read: 32.− [C]

Example: 32 ÷ (−4) = −8

Depress [3] [2] [÷] [−] [4] [=] Read: 8.−

2. Chain Functions with Decimals

Example: 95.6 + 78 X 3.2 ÷ 7.6 = 73.094736

Depress [9] [5] [.] [6] [+] [7] [8] [X] [3] [.] [2] [÷] [7] [.] [6] [=] Read 73.094736

Example: 56 + 58.2 X (−23) ÷ 9 = 291.84444−

Depress [5] [6] [+] [5] [8] [.] [2] [X] [−] [2] [3] [÷] [9] [=] Read: 291.84444−

Example: $\frac{(2 + 5 - 3) \times 8}{4} - 7 = 1$

Depress [2] [+] [5] [−] [3] [X] [8] [÷] [4] [−] [7] [=] keys Read: 1.

3. Percentages

Example: What is 9% of 125?

Depress [9] key
Depress [%] key
Depress [1] [2] [5] keys
Depress [=] key Read: 11.25

Example: What is 230% of 526.35?

Depress [2] [3] [0] keys
Depress [%] key
Depress [5] [2] [6] [.] [3] [5] keys
Depress [=] key Read: 1210.605

4. Adding and Using Memory for Grand Total

Example: 2 + 3 = 5
3 + 4 = 7
4 + 5 = 9

The grand total of the 3 addition problems is 5 + 7 + 9 = 21.

Depress [2] [+] [3] [=] Read: 5.
Depress [M/K] key (5. is now stored in memory)
Depress [3] [+] [4] [=] Read 7.
Depress [+] [M/K] [=] [M/K] keys

(You have just added the total 7. to the 5. in the memory and put the new total [12.] into the memory)

Depress [4] [+] [5] [=] keys Read 9.
Depress [+] [M/K] [=] keys Read 21. Final grand total

5. Multiplying and Using Memory for Grand Total

Example: 12 X 2 = 24 The grand total of the 3
13 X 3 = 39 multiplication problems
14 X 4 = 56 is 24 + 39 + 56 = 119

Depress [1] [2] [X] [2] [=] keys Read: 24.
Depress [M/K] key (24. is now stored in the memory)
Depress [1] [3] [X] [3] [=] keys Read: 39.
Depress [+] [M/K] [=] [M/K] keys
(You have just added the total 39. to the previous total 24. and placed the new total [63.] into the memory)
Depress [1] [4] [X] [4] [=] keys Read: 56.
Depress [+] [M/K] [=] keys Read: 119. Final grand total

6. Constant Multiplication

Example: 12.25 X 11 = 134.75
12.25 X 19 = 232.75
12.25 X 15 = 183.75

Depress [1] [2] [.] [2] [5] [=] [M/K] keys
(You have now placed 12.25 into the memory to be used as a constant)
Depress [X] [1] [1] [=] keys Read: 134.75
Depress [1] [9] [X] [M/K] [=] keys Read: 232.75
Depress [1] [5] [X] [M/K] [=] keys Read: 183.75

7. Constant Division

Example: 145 ÷ 12.93 = 11.21423
147 ÷ 12.93 = 11.368909
159 ÷ 12.93 = 12.296983

Depress [1] [2] [.] [9] [3] [=] [M/K] keys
(You have now placed 12.93 into memory to be used as a constant)
Depress [1] [4] [5] [÷] [M/K] [=] keys Read: 11.21423
Depress [1] [4] [7] [÷] [M/K] [=] keys Read: 11.368909
Depress [1] [5] [9] [÷] [M/K] [=] keys Read: 12.296983

8. Constant Multiplication, Division, Addition and Subtraction

Example: 1.2345 X 59 = 72.8355
1.2345 X 68 = 83.946
76 ÷ 1.2345 = 61.563385
1.2345 + 6.8 = 8.0345
79.2 – 1.2345 = 77.9655

Depress [1] [.] [2] [3] [4] [5] [=] [M/K] keys
(You have now placed 1.2345 into memory to be used as a multi-purpose constant)
(For [X] [÷] [+] [–])
Depress [X] [5] [9] [=] keys Read: 72.8355
Depress [6] [8] [X] [M/K] [=] keys Read: 83.946
Depress [7] [6] [÷] [M/K] [=] keys Read: 61.563385
Depress [6] [.] [8] [+] [M/K] [=] keys Read: 8.0345
Depress [7] [9] [.] [2] [–] [M/K] [=] keys Read: 77.9655

9. **Squaring**

Example: $12^2 = 144$

Depress [1] [2] keys
Depress [X²] key Read: 144. or 12^2

Example: $2.345^4 =$

Depress [2] [.] [3] [4] [5] keys
Depress [X²] key Read: 5.499025 or 2.345^2
Depress [X²] key Read: 30.239275 or 2.345^4

10. **Raising to Power**

Example: 9.7354^3

Depress [9] [.] [7] [3] [5] [4] keys
Depress [=] [M/K] keys
Depress [X²] key Read: 94.778013 or 9.7354^2
Depress [X] [M/K] [=] Read: 922.70186 or 9.7354^3

Example: 19.33^5

Depress [1] [9] [.] [3] [3] keys
Depress [=] [M/K] keys
Depress [X²] key Read: 373.6489 or 19.33^2
Depress [X²] key Read: 139613.5 or 19.33^4
Depress [X] [M/K] [=] Read: 2698728.9 or 19.33^5

11. **Square Root**

Example: $\sqrt{144} = 12.$

Depress [1] [4] [4] keys
Depress [√x] key Read: 12.

NOTE: Your answer has automatically been placed into memory. To prove it, depress [C] key. Depress [M/K] key.

COMMERCIAL APPLICATIONS

1. **Simple Discounts**

Example: An item sells for $53.50 with a discount of 12%. What is the amount of discount?

Depress [5] [3] [.] [5] [%] [–] [1] [2] [=] keys

Example: An item sells for $53.50 with a discount of 12%. What is the amount of the discount? What is the reduced sales price?

Depress [5] [3] [.] [5] [=] [M/K] keys
Depress [%] [–] [1] [2] [=] keys Read: 6.42– discount
Depress [+] [M/K] [=] keys Read: 47.08 sales price

Example: An item sells for $16.98 with a discount of 5%. What is the amount of the discount? What is the reduced sales price?

Depress [1] [6] [.] [9] [8] [=] [M/K] keys
Depress [%] [–] [5] [=] keys Read: 0.849– discount
Depress [+] [M/K] [=] keys Read: 16.131 sales price

Since this problem is dealing with dollars and cents, it would be desirable to have the discount read to only 2 decimal places ($.85 instead of $.849) with the answer "rounded-off" to the nearest cent. Let's do the above problem using "round-off."

Depress [.] [=] [2] keys (you have now instructed the calculator to reduce decimal to 2 places and round-off to nearest cent.)
Depress [1] [6] [.] [9] [8] [=] [M/K] keys
Depress [%] [–] [5] [=] keys Read: 0.85 –
Depress [+] [M/K] [=] keys Read: 16.13 sales amt.

2. Discount and Tax Add-Ons Using Memory

Decimal set at 2 places with round-off ([·] [=] [2])

Example: An item sells for $119.95 with a discount of 33%. What is the discount? What is the reduced price? Sales tax of 5% must be charged. What is the amount of the sales tax? What is the net price?

Depress [1] [1] [9] [·] [9] [5] [=] [M/K] keys
Depress [%] [−] [3] [3] [=] keys Read: 39.58– discount
Depress [+] [M/K] [=] keys Read: 80.37 reduced price
Depress [M/K] [%] [5] [=] keys Read: 4.02 tax
Depress [+] [M/K] [=] keys Read: 84.39 net price

3. Multi-Decimal Settings

Examples:

(Decimal at 6 places) – 155 ÷ 12 = 12.916666
(Decimal at 5 places) – 155 ÷ 12 = 12.91667
(Decimal at 4 places) – 155 ÷ 12 = 12.9167
(Decimal at 3 places) – 155 ÷ 12 = 12.917
(Decimal at 2 places) – 155 ÷ 12 = 12.92
(Decimal at 1 place) – 155 ÷ 12 = 12.9
(Decimal at 0 places) – 155 ÷ 12 = 13

Depress [·] [=] [6] [1] [5] [5] [=] [M/K] keys
Depress [÷] [1] [2] [=] keys Read: 12.916666 - no rounding
Depress [·] [=] [5] [M/K] [÷] [1] [2] [=] keys
Read: 12.91667 - rounded
Depress [·] [=] [4] [M/K] [÷] [1] [2] [=] keys
Read: 12.9167- rounded

Depress [·] [=] [3] [M/K] [÷] [1] [2] [=] keys
Read: 12.917 - rounded
Depress [·] [=] [2] [M/K] [÷] [1] [2] [=] keys
Read: 12.92 - rounded
Depress [·] [=] [1] [M/K] [÷] [1] [2] [=] keys
Read: 12.9 - no rounding necessary
Depress [·] [=] [0] [M/K] [÷] [1] [2] [=] keys
Read 13. - rounded
Depress [·] [=] [0] [M/K] [÷] [1] [2] [X] keys
Read: 12.916666 - no rounding

NOTE: Even with decimal set at 0 places you can cause answer to fully float by commanding your answer with any key except the [=] key.

4. Typical Invoice Extension

Example: 7 items @ $ 3.68
11 items @ $ 3.65
1 item @ $12.65
Less 7% discount on total
Plus 6% sales tax
Plus $1.50 delivery

Depress [7] [X] [3] [·] [6] [8] [=] [M/K] keys Read: 25.76
Depress [1] [1] [X] [3] [·] [6] [5] [+] keys Read: 40.15
Depress [1] [2] [·] [6] [5] [+] keys Read: 52.8
Depress [M/K] [=] [M/K] keys Read: 78.56
Depress [%] [−] [7] [=] keys Read: 5.50– discount
Depress [+] [M/K] [=] [M/K] keys Read: 73.06 sales amount
Depress [%] [6] [=] keys Read: 4.38 sales tax

Depress [+] [M/K] [+] keys Read: 77.44 total sale
Depress [1] [·] [5] [=] keys Read: 78.94 total with delivery

5. **Percentage Distribution Against Total Sales (Proration)**

Example: Department A Sales = $3,456.00
Department B Sales = $7,891.00
Department C Sales = $1,230.00
Department D Sales = $2,589.00

Find total gross sales and the percentage of gross sales for each dept.
Decimal at 2 places ([·] [=] [2])

Depress [3] [4] [5] [6] [+] [7] [8] [9] [1] [+] keys
Depress [1] [2] [3] [0] [+] [2] [5] [8] [9] [=] keys
Read: 15166. total gross sales

Depress [M/K] [3] [4] [5] [6] [÷] [M/K] [=] keys
Read: .23 or 23% of gross

Depress [7] [8] [9] [1] [÷] [M/K] [=] keys
Read: .52 or 52% of gross

Depress [1] [2] [3] [0] [÷] [M/K] [=] keys
Read: .08 or 8% of gross

Depress [2] [5] [8] [9] [÷] [M/K] [=] keys
Read: .17 or 17% of gross

RECIPROCALS

1. Example: What is 5/8ths when translated into hundredths?

Depress [8] key (for 1/8th)
Depress [1/X] key Read: 0.125 for 1/8th
Depress [X] key
Depress [5] key
Depress [=] key Read: 0.625 for 5/8ths

2. Example: What is $2^3/_6$ 4ths when translated into hundredths?

Depress [6] [4] keys (for 1/64th)
Depress [1/X] key Read: 0.015625 for 1/64th
Depress [X] key
Depress [3] key
Depress [+] key Read: 0.046875 for 3/64ths)
Depress [2] key
Depress [=] key Read: 2.046875 for $2^3/_{64}$ ths

3. Example: Value of Stock:
You have 450 shares of stock "A" at 5-7/8 per share.
You have 120 shares of stock "B" at 12-3/8 per share.
You have 250 shares of stock "C" at 1-5/8 per share.

What is the value of all your stock?
450 X 5-7/8 = ?
120 X 12-3/8 = ?
250 X 5-7/8 = ?
Total ?

Depress [8] key
Depress [1/X] key
Depress [X] key
Depress [7] key

Depress [+] key
Depress [5] key
Depress [X] key
Depress [4] [5] [0] keys
Depress [=] key — Read: 2643.75 (1st answer)
Depress [M/K] key — (You have just placed your total into memory)

Depress [8] key
Depress [1/X] key
Depress [X] key
Depress [3] key
Depress [+] key
Depress [1] [2] keys
Depress [X] key
Depress [1] [2] [0] keys
Depress [=] key — Read: 1485 (2nd answer)
Depress [+] [M/K] [=] [M/K] keys
(To add 2nd total to 1st total)

Depress [8] key
Depress [1/X] key
Depress [X] key
Depress [5] key
Depress [+] key
Depress [1] key
Depress [X] key
Depress [2] [5] [0] keys
Depress [=] key — Read: 406.25 (3rd answer)
Depress [+] [M/K] [=] keys
Read: 4535. (Grand Total)

SOLUTION OF A SECOND DEGREE EQUATION

Problem: $3.6\,X^2 + 4.1\,X - 7 = 0$

Formula: $X_{1,2} = \dfrac{-4.1 \pm \sqrt{4.1^2 + 4 \cdot 7 \cdot 3.6}}{2 \cdot 3.6}$ ($X_1 = 0.937$) ($X_2 = 2.075-$)

Operating Steps: Turn calculator OFF and then ON again. This will set your decimal to full float. (Scientific notation)

Depress [4] [.] [1] keys
Depress [X²] key
Depress [M/K] key
Depress [4] key
Depress [X] key
Depress [7] key
Depress [X] key — Read: 28.
Depress [3] [.] [6] keys
Depress [+] key — Read: 100.8
Depress [M] key — Read: 16.81
Depress [=] key — Read: 117.61
Depress [√x] key — Read: 10.844814
Depress [÷] key — Read: 10.844814
Depress [2] key
Depress [÷] key — Read: 5.422407
Depress [3] [.] [6] keys
Depress [=] key — Read: 1.5062241
Depress [M/K] key
Depress [C] key
Depress [−] key

Depress [4] [·] [1] keys
Depress [÷] key
Depress [2] key
Depress [÷] key
Depress [3] [·] [6] keys
Depress [+] key — Read: 0.5694444— = $\dot{y}$
Depress [M/K] key — Read: 1.5062241
Depress [+] key — Read: 0.9367797 = X_1
(may be rounded to 0.937)

Depress [C] key
Depress [M/K] key
Depress [X] key
Depress [—] key
Depress [1] key
Depress [+] key
Depress [—] key
Depress [·] [5] [6] [9] [4] [4] [4] [4] keys
(same as $\dot{y}$ above)
Depress [+] key — Read: 2.0756685— = X_2
(may be rounded to 2.076—)

CALCULATE THE ROOT MEAN SQUARE ($R\bar{m}S$)

Problem: Find root mean square for the following:

Solution and Formula:

$X_1 = 19.09$

$X_2 = 8.76$

$X_3 = 33.43$

$n = X_1$ to X_n

$$R\bar{m}S = \sqrt{\frac{X_1^2 + X_2^2 + X_3^2}{n}}$$

$$R\bar{m}S = \sqrt{\frac{19.09^2 + 8.76^2 + 33.43^2}{3}}$$

Depress [1] [9] [·] [0] [9] keys
Depress [X^2] key — Read: 364.4281 = X_1
Depress [=] key
Depress [M/K] key
Depress [8] [·] [7] [6] keys
Depress [X^2] key — Read: 76.7376 = X_2
Depress [+] key
Depress [M/K] key
Depress [=] key
Depress [M/K] key
Depress [3] [3] [·] [4] [3] keys
Depress [X^2] key — Read: 1117.5649 = X_3
Depress [+] key
Depress [M/K] key
Depress [÷] key — Read: 1558.7306
Depress [3] key
Depress [$\sqrt{x}$] key — Read: 22.794228 = $R\bar{m}S$

NOTE: When depressing the [X²] [1/X] and [√X] keys, the Columbia Scientific performs so-called "monadic" functions (meaning the evolution of one single number).

AREA OF A TRIANGLE WITH SIDES GIVEN

a = 16.35 ft. b = 19.53 ft. c = 16.17 ft.

$$\text{Area} = A = \sqrt{p\,(p-a)\,(p-b)\,(p-c)}$$

where $p = \frac{a+b+c}{2}$

Depress [·] key
Depress [=] key
Depress [3] key
Depress [1] [6] [·] [3] [5] keys
Depress [+] key
Depress [1] [9] [·] [5] [3] keys
Depress [+] key — Read: 35.88
Depress [1] [6] [·] [1] [7] keys
Depress [÷] key — Read: 52.05
Depress [2] key
Depress [=] key — Read: 26.025
Depress [M/K] key
Depress [C] key
Depress [−] key
Depress [1] [6] [·] [3] [5] keys
Depress [+] key
Depress [M/K] key
Depress [+] key — Read: 9.675 = p−a
Depress [C] key
Depress [−] key

Depress [1] [9] [.] [5] [3] keys
Depress [+] key
Depress [M/K] key
Depress [+] key Read: 6.495 = p–b
Depress [C] key
Depress [–] key
Depress [1] [6] [.] [1] [7] keys
Depress [+] key
Depress [M/K] key
Depress [X] key Read: 9.855 = p–c
Depress [6] [.] [4] [9] [5] keys (p–b)
Depress [X] key Read: 64.008225
Depress [9] [.] [6] [7] [5] keys (p–a)
Depress [X] key Read: 619.27957)
Depress [M/K] key (p)
Depress [√x] key Read: 126.952 = area in ft^2

RESONANT FREQUENCY OF A PARALLEL CIRCUIT IN MEGAHERTZ

$$\text{freq.} = \frac{1}{2\,\pi\,\sqrt{LC}} \quad \text{where} \quad L = 20 \cdot 10^{-6}\ \text{H}, \quad C = 120 \cdot 10^{-12}\ \text{F}$$

$$f = \frac{1}{2\,\pi\,\sqrt{20 \cdot 10^{6} \cdot 120 \cdot 10^{-12}}} = \frac{1000 \cdot 10^{6}}{2\,\pi\,\sqrt{20 \cdot 120}} = 3.249\ \text{MHz}$$

Depress [.] key
Depress [=] key
Depress [3] key
Depress [2] [0] keys
Depress [X] key
Depress [1] [2] [0] keys
Depress [√x] key Read: 48.990
Depress [X] key
Depress [3] [.] [1] [4] [1] keys
Depress [X] key Read: 153.87759
Depress [2] key
Depress [÷] key
Depress [1] [0] [0] [0] keys
Depress [1/x] key Read: 3.249 = MHz

HYPOTENUSE OF RIGHT ANGLE TRIANGLE

$X_1 = 13.78 \quad X_2 = 53.07$ then $d = \sqrt{X_1^2 + X_2^2}$

Depress [·] key
Depress [=] key
Depress [2] key
Depress [1] [3] [·] [7] [8] keys
Depress [X²] key Read: 189.89
Depress [=] key
Depress [M/K] key
Depress [5] [3] [·] [0] [7] keys
Depress [X²] key Read: 2816.42
Depress [+] key
Depress [M/K] key
Depress [√x] key Read: 54.83 = d [diagonal]